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Satellites over Mideast

Succession of Cosmos spacecraft gave Kremlin detailed information about desert tank battles

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A succession of Cosmos satellites launched from two cosmodromes in the Soviet Union kept a close watch on the Middle East and related areas during the Arab-Israeli War.

They are believed to have given the Kremlin detailed information about tank battles in Sinai and on the Syrian front, as well as on the movement of Israeli forces east and west of the Suez Canal.

It should have been possible to make detailed assessments of battle damage, including strikes made on Arab oil installations and other targets by the Israeli Air Force, too. Even from a height of more than 500 miles the United States' Earth Resources Technology Satellite has obtained clear pictures of oil-well fires in Saudi Arabia, which give some idea of the wide scope of this kind of space activity.

The Soviet spy satellites are also thought to have monitored key centers in the United States supplying arms to Israel and related air and sea traffic movements.

Standard units used

Spacecraft used during the latest Arab-Israeli skirmish appear to have been the standard 12-day recoverable type which eject a capsule — containing high-resolution reconnaissance cameras — for parachute recovery on Soviet territory.

Amateur radio tracking stations in Europe (notably at Kettering, England) regularly pick up beacon signals from these capsules after they have landed and before their transmitters are switched off by Soviet helicopter teams. Films are then flown immediately to a special processing laboratory of the Soviet Ministry of Defense.

The pictures, similar to those obtained by high-flying reconnaissance aircraft, are normally taken at heights below 150 miles and show objects on the ground only a few feet across — possibly even men.

Satellites thought to have covered the first weeks of the Arab-Israeli conflict began with Cosmos 596 launched on Oct. 3, three days before the Egyptian crossing of the Suez Canal. The urgency of obtaining up-to-date battlefield information is borne out by the fact that satellites were being commanded down after orbiting for only six days.

Six flights logged

Satellites involved were as follows:

Cosmos Launch Date		Orbital Height (miles)	Angle to equator (deg)	Orbital period (min)
596	Oct. 3	131-192	65.4	89.4
597	Oct. 6	131-194	65.4	89.5
598	Oct. 10	132-223	72.9	90.0
599	Oct. 13	128-192	65.0	89.3
600	Oct. 16	128-227	72.9	90.0
602	Oct. 20	152-227	72.9	90.0

On Oct. 2, eight satellities, Cosmos 588 to 595, were launched from a single carrier rocket into orbits ranging between 860 and 940 miles above the earth at 74 degrees to the equator. This was the seventh launching of its kind, the last batch of eight satellites having entered similar orbits last June.

According to the Royal Aircraft Establishment, Farnborough, England, they are ellipsoidal in shape, about three feet long, and weigh about 53 pounds. Possibly they are used primarily as maritime satellites to keep shore bases and command centers in contact with far-ranging elements of the Soviet Fleet.

Navigation aid provided

Another type of Cosmos satellite, similar to the U.S. Navy's Transit, is believed to have a navigation function. This is particularly important for Soviet missile-launching submarines which must keep radio silence at shallow depth while picking up signals from a satellite from which the vessel's precise position can be computed.

For the past 11 years the Russians have used the Cosmos label to cover a wide range of activity — from scientific satellites and the testing of new spacecraft to military space systems. The scientific program includes research into the radio-reflecting layers of the earth's ionosphere and radiation belts to shortwave emissions from the sun. Biomedical problems of space flight have also been investigated by them.

Many of the satellites employed have standardized design including power, control, and communications systems allowing them to be fabricated on a production line. And the military applications have included tests of a Fractional Orbit Bombardment System (FOBS) and a satellite-interceptor.

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